

REMARKS:

In the foregoing amendments, claim 1 was amended by inserting the limitations of claim 3 therein. Claim 3 was canceled accordingly. Claim 12 was added to the application, which includes the limitations of original claim 5 and depends from amended claim 1. After the foregoing amendments, claims 1, 2 and 4-12 are in the application for consideration by the examiner at this time. Early consideration and allowance of these claims are respectfully requested for the following reasons.

In the foregoing amendments, claims 1 and 2 were amended to provide proper antecedent basis for the expression "said pipe" by changing this expression to "said multi-layered pipe" or on other appropriate expression. In addition, the preambles of claims 4-11 were amended to correspond to the claim from which they respectively depend. Editorial changes were also made to the claims. Applicant respectfully submits that claims 1, 2 and 4-12 particularly point out and distinctly claim the subject matter regarded as the invention within the meaning of 35 U.S.C. §112, second paragraph. Therefore, applicant respectfully requests that the examiner reconsider and withdraw this rejection, as it was set forth in the outstanding Office action.

Claims 1-4, 6 and 8-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent No. 5,937,686 of Arai *et al.* (Arai '686) in view of JP 2001-269721 of Katayama and WO 01/83130 of Flemig *et al.* (Flemig). This rejection is set forth on pages 3 and 4 of the Official action. Claims 5 and 7

Page 6 of 12
Application No. 10/643,945
Attorney Docket No.: VX032548

were rejected under 35 U.S.C. § 103(a) as being unpatentable over Arai '686, Katayama and Flemig in further view of U.S. patent No. 3,859,839 of Crotti et al. (Crotti). This rejection is set forth on page 5 of the Official action. Applicant respectfully submits that the inventions defined in claims 1, 2 and 4-12 are patently distinguishable from the teachings of Arai '686, Katayama, Flemig and/or Crotti for at least the following reasons.

Amended claim 1 defines, *inter alia*, that the multi-layered pipe is bent by causing the clamping die to revolve around the bending die while the inner pipe is pushed in the direction of the distal end of the inner pipe. None of the teachings cited against applicant's claims contemplate or suggest this procedure of the presently claimed invention. Applicant's specification disclosure on page 6, third line from the bottom of the page, through page 7, line 4, explains that pushing the inner pipe in the direction of the distal end of the inner pipe when the bending die it is revolved inhibits deformation of the inner pipe, so that the gap between the inner pipe and the outer pipe can be maintained with high precision. The teachings of Arai '686, Katayama, Flemig and Crotti do not contemplate or suggest this procedure of applicant's claims. Thus, this procedure provides applicant's claimed invention with a distinct advantage over the methods proposed by any of Arai '686, Katayama, Flemig and Crotti. For such reasons, applicant respectfully submits that the presently claimed invention is patently distinguishable from these teachings within the meaning of 35 U.S.C. §103. Therefore, applicant respectfully requests that the

examiner reconsider and withdraw the rejections of the present claims over these teachings.

Present claims 5, 7 and 12 require that the distal end portion of the outside mandrel is made of a material selected from ultra high molecular weight polyethylene, MC nylon, and polyacetate. As discussed in applicant's specification disclosure on page 5, lines 3-10, the distal end portion (or tongue pieces) of the outside mandrel preferably has an elasticity, and therefore, is resilient, so that it can recover its former shape after bending. In addition, the frictional resistance of the distal end portion of the outer mandrel can be made small, easing movement of the outer mandrel between the inner pipe and the outer pipe. Thus, frictional wear of the outer mandrel can be made small, so that the outer mandrel can be inserted easily between the inner pipe in the outer pipe and can be used repeatedly in the long-term. The teachings of Arai '686, Katayama, Flemig and Crotti do not contemplate or suggest such a material for the outer mandrel of applicant's claims. The use of such a mandrel provides applicant's claimed invention with a distinct advantage over the methods proposed by any of Arai '686, Katayama, Flemig and Crotti. For such reasons, applicant respectfully submits that the presently claimed invention is patently distinguishable from these teachings within the meaning of 35 U.S.C. §103. Therefore, applicant respectfully requests that the examiner reconsider and withdraw the rejections of the present claims over these teachings.

In the rejection of claims 1-11, Arai '686, Katayama and Flemig were combined. The teachings of Arai '686 and Katayama are concerned with bending a double-walled pipe. However, the teachings of Flemig are concerned with bending a single-walled pipe. Accordingly, applicant respectfully submits that one of ordinary skill in the art would not substitute an isolated teaching from Flemig into the teachings of Arai '686 or Katayama with any expectation of solving problems therein associated with bending double-walled pipes. For example, the teachings of Flemig propose the use of a solid cylinder as a mandrel tip, a spherical clamping head 7, 17, and a pressured disk 8, which structures would not be appropriate in the devices proposed by Arai '686 and Katayama. This is because these structures of Flemig are not appropriate for bending a double-walled pipe, as proposed in Arai '686 and Katayama and as required in the present claims. In addition, the functionality of the slits or the reason for using the slits in Flemig is to improve the flexibility of the mandrel tip made of a solid cylinder. This is quite different from maintaining a constant gap between the inner and outer pipe even when the pipe is continuously bent into different directions, which is achieved by the invention defined in applicant's claims. For these reasons, applicant respectfully submits that the combined teachings of Arai '686, Katayama and Flemig could not motivate one of ordinary skill in the art to the inventions set forth in applicant's claims.

The teachings of Crotti were used in addition to the teachings of Arai '686, Katayama and Flemig in the rejection of claims 5 and 7. The teachings of

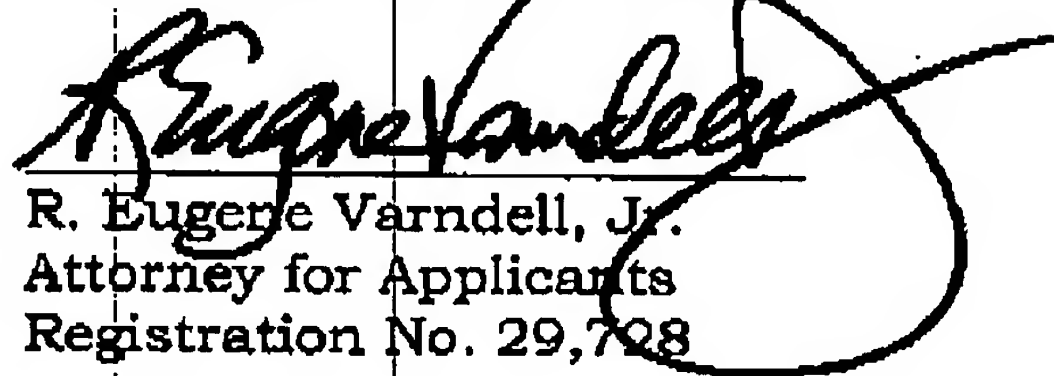
Crotti do not cure or rectify the deficiencies in the teachings of Arai '686, Katayama and Flemig that were discussed above. Accordingly, applicant respectfully submits that claims 5 and 7 are patently distinguishable from the teachings of Arai '686, Katayama and Flemig, together with the teachings of Crotti, along the lines discussed above. Therefore, applicant respectfully requests that the examiner reconsider and withdraw this rejection.

For the foregoing reasons, applicant respectfully submits that the teachings of Arai '686, Katayama, Flemig and/or Crotti, either alone or in combination, cannot contemplate or suggest the invention as set forth in claims 1, 2 and 4-12 within the meaning of 35 U.S.C. §103. Therefore, applicant respectfully requests that the examiner reconsider and withdraw the rejections of these claims, and formally allow claims 1, 2 and 4-12.

The foregoing is believed to be a complete and proper response to the Official action mailed September 22, 2005. While it is believed that all the claims in this application are in condition for allowance, should the examiner have any comments or questions, it is respectfully requested that the undersigned be telephoned at the below listed number to resolve any outstanding issues.

In the event this paper is not timely filed, applicant hereby petitions for an appropriate extension of time. The fee therefor, as well as any other fees which become due, may be charged to our deposit account No. 50-1147.

Respectfully submitted,
POSZ LAW GROUP, PLC


R. Eugene Varndell, Jr.
Attorney for Applicants
Registration No. 29,728

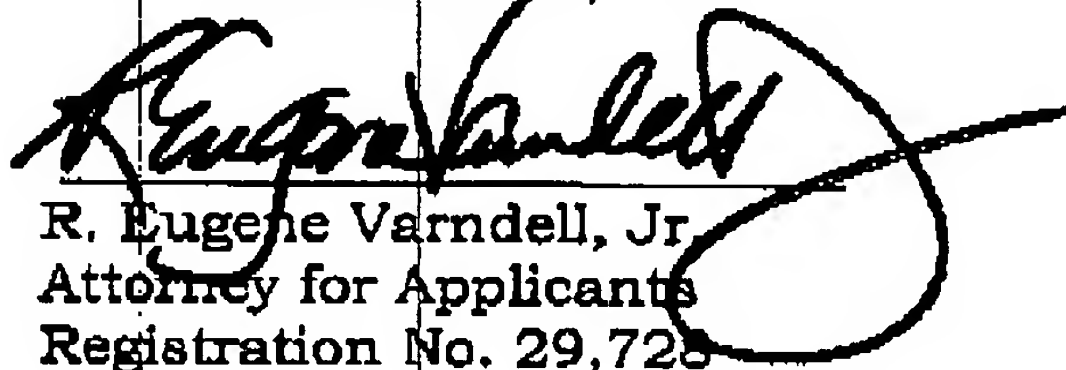
Atty. Docket No. VX032548
12040 South Lakes Drive
Suite 101
Reston, Virginia 20191
(703) 707-9110

\\\\\\POSZDC02.POSZLAW.COM\\POSZDOCS\\SHARE\\VARNDELL\\CLIENT FILES\\2005\\DEC 2005\\P189-2548 R9.DOC

Certificate of Transmission under 37 CFR 81.8

I hereby certify that this correspondence (Response under 37 CFR 1.111, which totals 12 pages including this certificate) is being facsimile transmitted to the Patent and Trademark Office (facsimile No. 571-273-8300) on December 22, 2005.

Respectfully submitted,
POSZ LAW GROUP, PLC


R. Eugene Varndell, Jr.
Attorney for Applicants
Registration No. 29,728

12040 South Lakes Drive
Suite 101
Reston, Virginia 20191
(703) 707-9110

Inventor(s) : Kazuhiko Nakazato
Serial Number : 10/643,945
Filed : August 20, 2003
For : BENDING METHOD AND MANDREL OF MULTI-LAYERED
PIPE
Examiner : Dmitry Suhol
Group Art Unit : 3725

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.